

Message

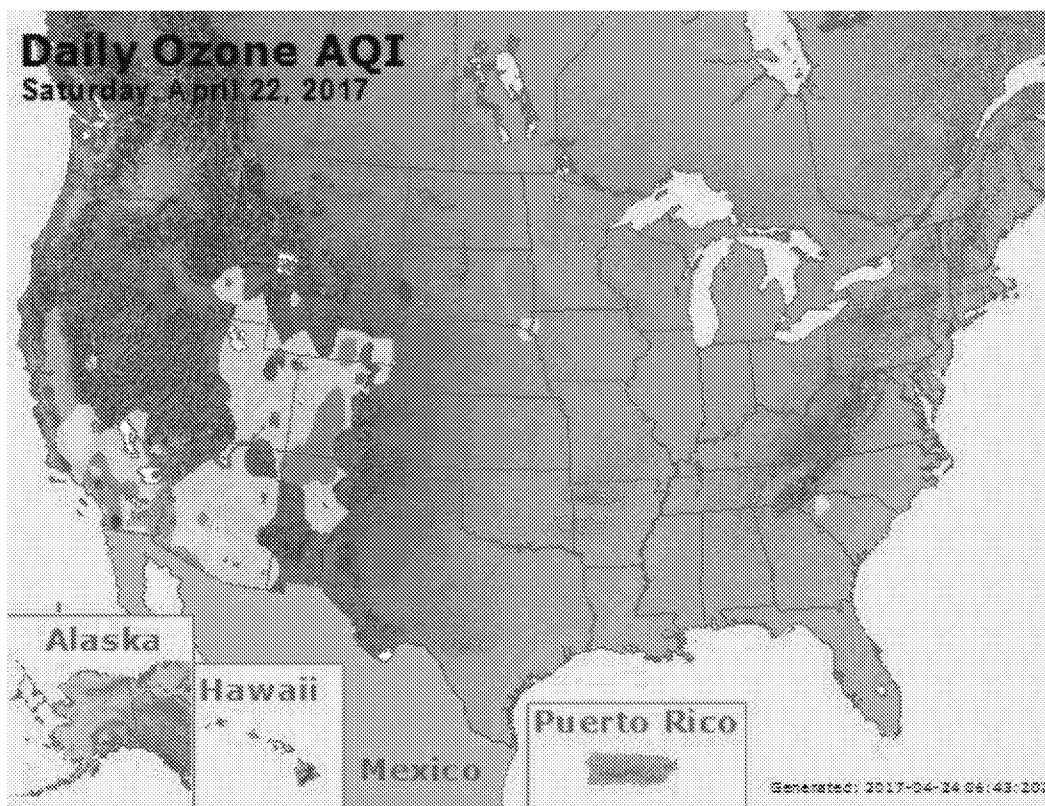
From: Payton, Richard [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B05F3A57A2C24A16AF33518E56451BF7-PAYTON, RICHARD]
Sent: 3/14/2018 2:09:51 PM
To: Landes - CDPHE, Scott [scott.landes@state.co.us]
CC: Gordon Pierce [gordon.pierce@state.co.us]; Dolwick, Pat [Dolwick.Pat@epa.gov]; Tonnesen, Gail [Tonnesen.Gail@epa.gov]
Subject: Could you help us with IPV/PT/RH plots for our draft SI EE Guidance Document

Scott:

We have been working on a draft of guidance for the development of Stratospheric Ozone exceptional event demonstrations. We will be sharing the draft with the SI workgroup in the near future.

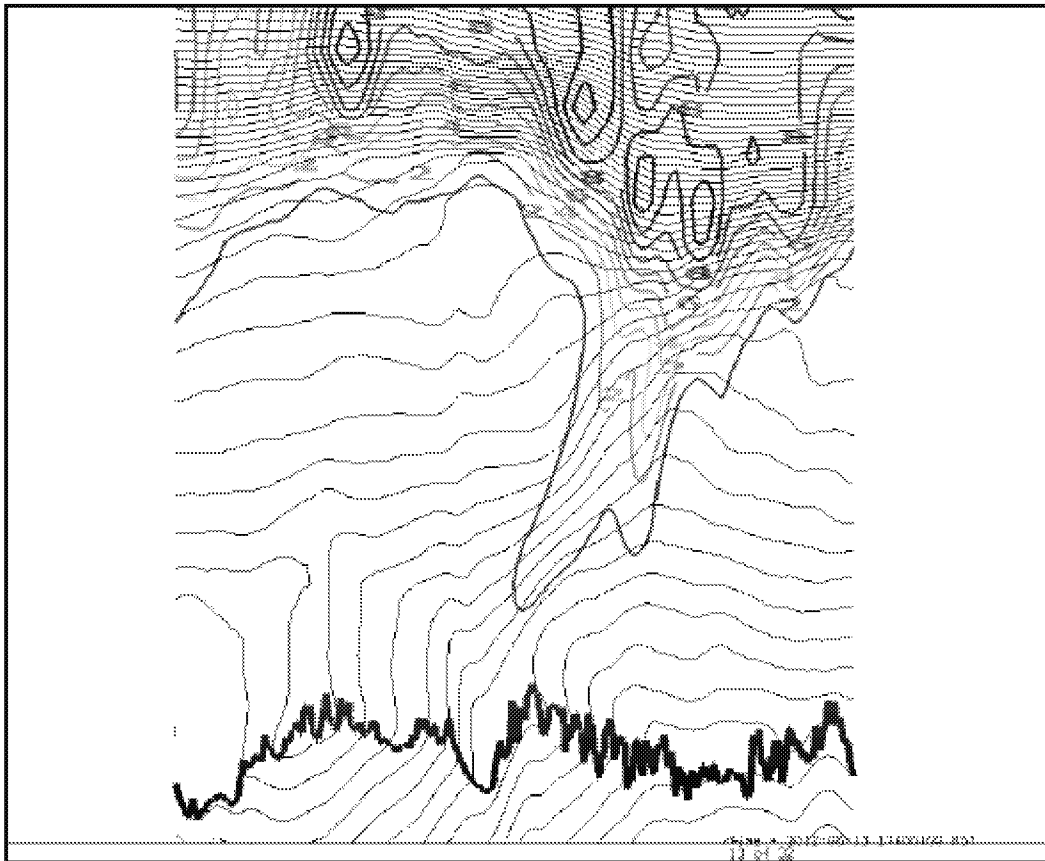
Throughout, we are using the 4-Corners SI event of April 22, 2017 as our example. We have graphics from many readily available data sources in the guidance, but at present do not have graphics of model based IPV/PT, which I have found to be one of the most compelling pieces of data in previous demos from CDPHE and Wyoming. I am wondering if you could help and generate a plot or two that we could include in the guidance.

Ozone on April 22, 2017 is shown in Airnow as:



Plots I found useful in the past include this from the Wyoming June 2015 demo, where Ryan managed to include IPV, RH, terrain and PT all on one chart:

Figure 21. RAP 20-km, 0-hour analysis showing south-to-north cross-section (left-to-right) terrain (solid dark line), IPV (colored contours starting at 1-PVU), RH (shaded areas depicting RH values less than 15%), and PT (thin black contours) cross-section valid at 5 pm MST, June 13, 2012. Click image to enlarge. Data below terrain not real.



this one from your 2010 demo where (I presume) Pat included surface pressure, IPV and mixing height on one chart:

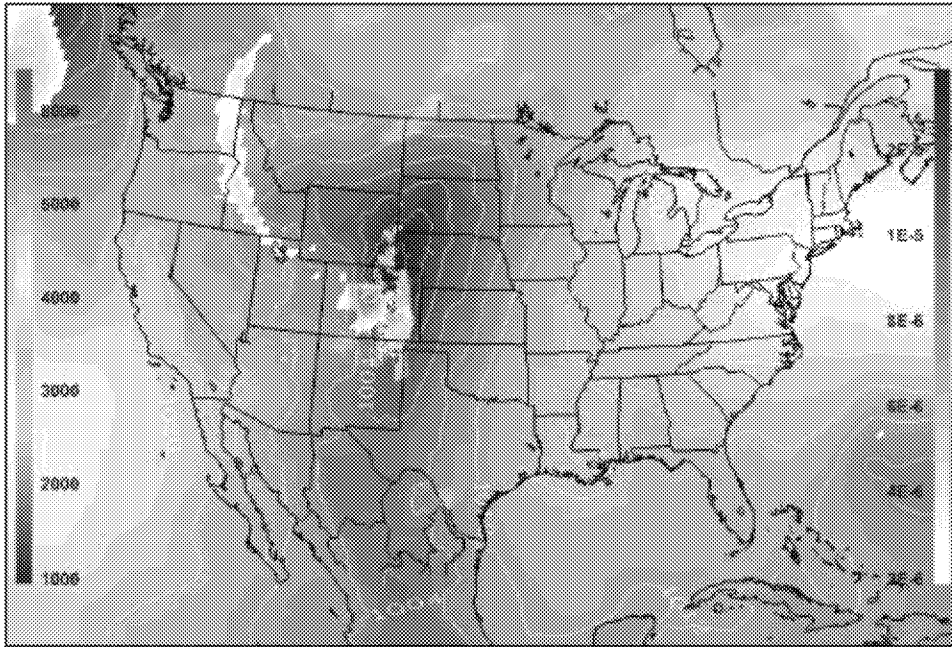


Figure 19. Isentropic Potential Vorticity greater than 2 PVU at the 310 K surface from the 18Z run of GDAS 0.5 degree by 0.5 degree model for 12:00 MST May 24, 2010, shaded in blue (right scale in native IPV units of $^{\circ}\text{K kg}^{-1} \text{ m}^2 \text{ s}^{-2}$); mean sea level surface pressure in mb (white contour lines and gray shading); and planetary boundary layer height or depth of mixed layer above the ground in meters for values greater than 3000 meters (rainbow color gradients and left scale) at 11:00 MST on May 24, 2010, from the 18Z initial analysis of the 18Z NAM12 model.

On the other hand, simple IPV along a transect, also from your 2010 demo is pretty good too:

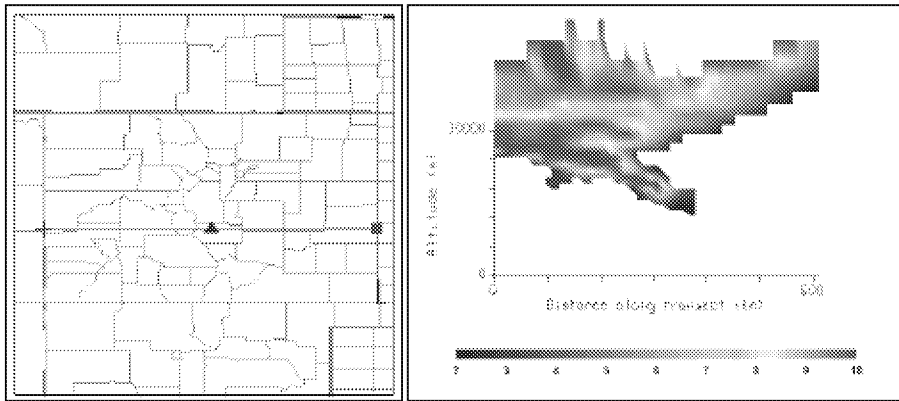


Figure 14. Vertical cross-section of IPV in the atmosphere in central Colorado (location shown in left panel) in PVU values of 2 or greater as a function of altitude above sea level in meters - based on the initial analysis data from the 18Z run of the NOAA/NCEP 12-kilometer grid NAM12 on May 24, 2010.

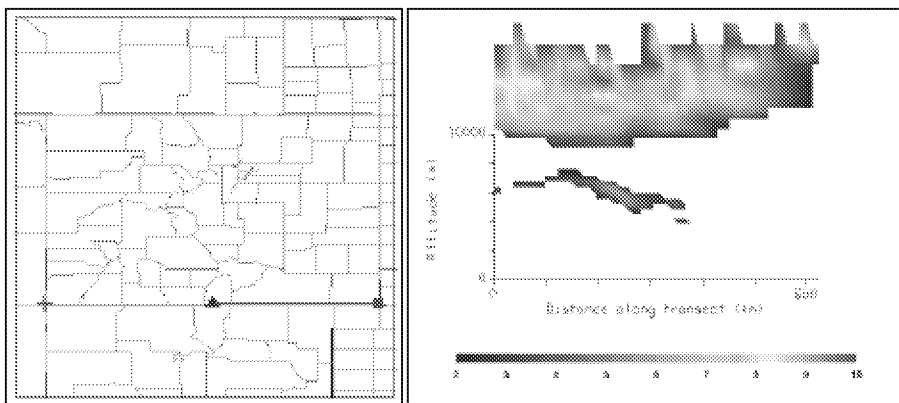


Figure 15. Vertical cross-section of IPV in the atmosphere along the Colorado-New Mexico border (location shown in left panel) in PVU values of 2 or greater as a function of altitude above sea level in meters - based on the initial analysis data from the 18Z run of the NOAA/NCEP 12-kilometer grid NAM12 on May 24, 2010.

Please let me know if Gordon will let you devote a few hours to this; if you can, we would like to have a synopsis of the steps you used (where you get the modeled data from, what its native format is, how you process/interpret the data, what graphic tool you use, some idea of how the tool goes from (I presume) binary data to graphic/mapped pictures).

Thanks for any help you can provide.

Richard
(303) 312-6439